

through 63; and see column 9, lines 12 through 17) wherein it is stated that signals are generated proximate in time with the rare stimuli presentations. It is also indicated in claim 1 of Lewis that the first and second brain signals are obtained in response to first and second stimuli in addition to task stimuli during a predetermined period of time. Lewis seeks to measure evoked potentials in which a predetermined set sequence of stimuli are used repeatedly and wherein the responses to stimuli are recorded as a function of time after the stimulus. Further, a number of the responses obtained by Lewis are averaged and a second more random set of stimuli are then used to calculate the differences at particular time intervals after the stimulus are measured. Lewis therefore requires that evoked potentials occur in order to determine a subjects interest in specific information. Lewis does not utilize non-stimulated brain wave signals to determine focused attentiveness.

Alternatively, the present invention does not require external stimulus in order to determine an individual's intensity of focused attention as is set forth in claim 1 of the present application. Lewis does not teach or remotely suggest obtaining signals that do not result from external stimuli as is claimed in the present invention. Further, Lewis does not teach obtaining an attention indicator signal indicative of an individual's focused attention where the signal is inversely proportional to the mathematical transformation of an amplitude measure of the difference in frontal lobe brain wave signals. In fact, Lewis requires comparison of signals evoked *after* stimuli are provided (see column 9, lines 12 through 32), and in no way obtains representative signals during a sequence of natural events. There is nothing in Lewis to suggest utilization of focusing the analysis on the difference between signals generated from

the frontal lobe and signals generated from an electrically neutral location other than during a predetermined window length proximate in time with external stimuli. The present invention is directed towards determining an individual's intensity of focused attention by obtaining a signal from a first sensor which is in an electrically connective relation to the individual's frontal lobe and then obtaining a representative reference signal from a second sensor which is in a more electrically neutral location, then subtracting the reference signal from the frontal lobe brain wave signal in order to produce an attention indicator signal which is indicative of the individual's intensity of focused attention. Lewis is directed toward analysis of signals generated from a response to stimulus generated by the experimenter, those signals collected from a frontal site. There is absolutely no teaching or suggestion within Lewis to utilize *non-stimulus* brain wave signals for determination of the individual's focused attention.

Prior art is anticipatory only if *every* element of the claimed invention is disclosed in a single item of prior art in the form literally defined in the claim. *Jamesbury Corp. v. Litton Indus. Products*, 756 F. 2d 1556 (Fed. Cir. 1985). As Lewis does not teach or even remotely suggest each element claimed in the present claim 1, namely comparing data from an electrically neutral location to data generated from the frontal lobe and producing a signal which is inversely proportional to any mathematical transformation of an amplitude measure of the difference, such rejection under 35 USC § 102 is inappropriate. Applicant's Attorney therefor respectfully requests the Examiner remove said rejection.

The Examiner has additionally indicated that claims 2 through 8 and claim 22, all of which are dependent from claim 1, are similarly rejected under 35 USC § 102 (c) as being

anticipated by Lewis, et al. As indicated above, Lewis fails to teach or suggest significant limitations which are set forth in claim 1 of the present application. Applicant's Attorney therefor respectfully requests the Examiner remove said rejections.

The Examiner has additionally rejected claims 31 and 32 under 35 USC § 102 (b) as being anticipated by Pope, et al., U.S. Patent number 5, 377,100. Applicant's Attorney respectfully traverses the examiner under grounds of rejection.

Claims 31 and 32 have now been amended to include the particularized aspect of altering the program in direct relation to the interest level of the user such that particular types of action sequences based on the individual's interest level are chosen in direct proportion to the amount of interest calculated by the signals. Alternatively, Pope sets forth a method of modifying the video game wherein the level of difficulty in the video game is adjusted inversely proportional to the level of attention in the subject. The present invention does not utilize an inverse relationship between the level of attention and the modification in the computer program. Claims 31 and 32 set forth methods of adjusting the presentation of the game to make it more interesting to the participant without changing the difficulty level. Rather than changing the difficulty level, this invention presents more of the same type of experiences that the user has previously found interesting, as determined from a record of his prior brainwave responses. Pope, et al. does not teach such adjustment to a computer program. Applicant's Attorney therefore respectfully suggests that the claims, as amended, are not anticipated by Pope and requests the Examiner remove said rejection.

Claim 33 has been added as dependant to claim 32 and particularly sets forth the direct

implication that the attention level of the user may have upon the alteration of the program and the basis for such alteration. As noted, Pope in no way discloses use of the signals in such a manner that records of events are stored and utilized to modify the execution of the program. Pope alters execution of the program by increasing the level of difficulty with decreased level of attention, an alteration that occurs concurrently and not as a result of stored data data about the user's interests. Thus, newly filed claim 33, which is dependant on claim 32, clearly is not anticipated by Pope.

## II. 35 U.S.C. 103 Claim Rejections

The Examiner has rejected claims 10, 11 and 14 under 35 USC § 103 (a) as being unpatentable over Lewis, et al. and further in view of Pope, et al. The Examiner reiterated that claim 1 was rejected under 35 USC § 102 (e) as previously mentioned. However, as indicated herein, Lewis et al. fails to set forth significant limitations of the presently claimed invention and particularly the limitations as are set forth in claim 1 noted above. It is further felt that neither Lewis alone, nor in combination with Pope, does not teach nor remotely suggest the limitations of the present invention. None of the references relied upon by the Examiner set forth the limitations which are currently outlined in claim 1. None of the references suggest utilization of signals in the manner claimed in claim 1 nor do the references make obvious the use of the signals as is outlined therein. The references cited by the Examiner fail to set forth any potential use of the non-stimulus signals such as are claimed in the present application. In fact, the Lewis reference is a prime example of the type of teaching which the present invention seeks to differentiate itself from in the requirement of utilizing an

external stimulus generated by the experimenter to obtain brain signals. The study of these evoked potentials is considered a completely separate branch of electroencephalography from the study of naturally-occurring brainwave signals by those skilled in the field. None of the references cited by the Examiner, neither the Lewis nor Pope reference, utilize the natural signals analyzed in the present invention to produce an attention indicator signal which is inversely proportional to any mathematical transformation of an amplitude measure of the difference of the frontal lobe brainwave signals.

As to claims 10, 11 and 14, the Examiner has indicated that Lewis does not teach a device, such as a computer, in which an attention indicator signal is inputted thereto and used to effect the computer programs execution in what is presented to an individual. However, as referred to by the Examiner, Pope teaches increasing the level of difficulty via the difficulty adjuster in order to effect the computer program. However, neither Lewis nor Pope teach nor suggest the particular signals measured and calculated herein and claimed in claim 1, the independent claim from which these claims depend. Neither of the references cited by the Examiner make the present claims obvious to one of ordinary skill in the art in that neither teach nor remotely suggest utilization of the signals as claimed. Applicant's Attorney respectfully requests the examiner withdraw said rejection.

### **III. Allowable Subject Matter**

Applicant appreciates the Examiner noting that claims 9, 12, 13, 15-21 and 23-30 contain allowable subject matter and would be allowable if rewritten in independent form

including all the limitations of the base claim and any intervening claims. Applicant's Attorney feels that the claims noted by the Examiner are allowable over the cited references and appreciates such notification.

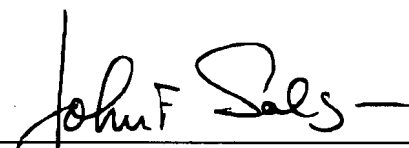
IV. Conclusion

Applicant respectfully submits that, upon entry of the within amendment, the present application is in condition for allowance. Accordingly, Applicant's Attorney respectfully requests the Examiner to allow the present case to pass to issue without further delay. However, should the Examiner believe that unresolved issues remain in this case, Applicant's Attorney respectfully requests an opportunity to discuss this case further by a collect call at (502) 584-1135.

Respectfully submitted,

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